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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,187	12/30/2003	Oleg M. Efimov	091-0203	9942
27431	7590	03/03/2006	EXAMINER	
SHIMOKAJI & ASSOCIATES, P.C. 8911 RESEARCH DRIVE IRVINE, CA 92618			KANG, JULIANA K	
			ART UNIT	PAPER NUMBER
			2874	

DATE MAILED: 03/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b> 10/749,187	<b>Applicant(s)</b> EFIMOV, OLEG M.	
	<b>Examiner</b> Juliana K. Kang	<b>Art Unit</b> 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 08 December 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-43 is/are pending in the application.
- 4a) Of the above claim(s) 25-28 and 32-37 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19, 21, 23, 24, 29-31 and 38-43 is/are rejected.
- 7) ☒ Claim(s) 20 and 22 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

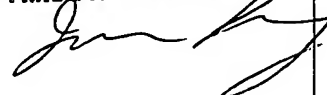
- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**JULIANA KANG  
PRIMARY EXAMINER**



**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>12/30/03</u> . | 6) <input type="checkbox"/> Other: _____  |

***Election/Restrictions***

1. Applicant's election without traverse of Species I (claims 1-24, 29-31 and 38-43) in the reply filed on December 8, 2005 is acknowledged. Thus, claims 25-28 and 32-37 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected Species, there being no allowable generic or linking claim.

***Claim Objections***

2. Claims 8, 23, 24 and 42 are objected to because of the following informalities: Claims recite N and N is not defined in the claims. Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-12, 15-19, 23, 24, 29-31 and 38-43 are rejected under 35 U.S.C. 102(e) as being anticipated by Madsen (U.S. Patent 6,956,991 B2).

Regarding claims 1-12, 15-19, 23, 24, 29-31, 38-43, Madsen discloses a variable optical line comprising a plurality of differential delay lines (12B, 12C, 13B, 13C... shown in Fig. 1) wherein each of said plurality of different delay lines comprises a pair of

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optical fibers having different lengths creating delay tunable from 0 to a time T and the switchable binary fixed delays form a series (0,T), (0,2T), (0,4T), .... [(0, (2n+1)T)] where n is an integer greater than equal to 0; and a plurality of phase actuated switchers (Mach-Zehnder switches [fiber coupler] having controlled phase shift [a light phase adjustment device] to provide constructive interference at a selected output waveguide (see column 3 lines 46-50)) connecting said plurality of differential delay lines.

5. Claims 1, 10, 13 and 38 are rejected under 35 U.S.C. 102(e) as being anticipated by Thompson et al (U.S. Patent 6,690,855 B2).

Thompson et al disclose an optical delay line comprising: a plurality of differential delay lines (16a, b, c, d...) and a plurality of phase actuated switchers (20, 23, 24 [spatial light modulator], see column 11 lines 11-43 and 12 lines 15-19) connecting said plurality of differential delay lines.

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madsen (U.S. Patent 6,956,991 B2) and further in view of Hung (US 2002/0051602 A1).

As described above Madsen disclose the claimed invention including phase shifters. However, Madsen does not teach that the phase shifters are a piezoelectric-

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stretcher. Hung teaches using pzt based fiber stretcher (see [0053]) is known in the art. Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any phase shifter including pzt based fiber stretcher as taught by Hung in Madsen to change phases in an optical waveguide.

8. Claim 21 is rejected under 35 U.S.C. 103(a) as being unpatentable over Madsen (U.S. Patent 6,956,991 B2) and further in view of Nolting et al (U.S. Patent 4,832,431).

As described above Madsen disclose the claimed invention including controlled phase shifters. However, Madsen does not teach that a birefringent crystal. Nolting et al teach using birefringent crystal in a waveguide as a phase shifter is known in the art (see column 1 lines 12-26). Thus it would have been obvious to one having ordinary skill in the art at the time the invention was made to use any phase shifter including a birefringent crystal in Madsen as taught by Nolting et al to change phases in an optical waveguide.

#### ***Allowable Subject Matter***

9. Claims 20 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: the closet prior art made of record, Madsen, does not teach or reasonably suggest the claimed structure of the phase actuated switcher having a mirror to accomplish applicant's invention exactly along with the other claimed features.

**Conclusion**

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. MacDonald et al (U.S. Patent 6,763,154 B2) teaches using a Mach-Zehnder switch having a phase shifter to turn the switch on and off. Baldwin et al (U.S. Patent 5,943,636) teach an optical delay device.

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Juliana K. Kang whose telephone number is (571) 272-2348. The examiner can normally be reached on Monday through Thursday 8:00 AM-2:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rod Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

**JULIANA KANG**  
**PRIMARY EXAMINER**  
